



Millennium Park in Chicago stands as a street-level green roof atop five stories of below-ground parking. (Photo courtesy of the Millennium Park Foundation)

# GREEN ROOFS NEED LONG-TERM PLANNING

Water retention, insulation and aesthetics are just some of the benefits realized to date

by GREG LEHMAN

**W**hether it is a 24.5-acre park or a simple tray system, venues have plenty of space to customize green roofs to their needs. Each type has its

strengths, and the professionals behind them were happy to share how their green roofs have helped their facilities.

Intensive green roofs, boasting anywhere between half a foot to two feet of soil and an overall park-like feel, classify the Millennium

Park in downtown Chicago well. To look at it now, with its capacity for live events, sidewalks and buildings, and a yearly draw of 5 million visitors, one might be surprised to learn the park sits on top of a five-story underground parking garage.



&gt;&gt; A GREEN STORY &lt;&lt;

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— SCOTT STEWART

“We are a green roof, however we are not a green roof in a very traditional sense,” said Scott Stewart, interim executive director of the Millennium Park Foundation and director of Lurie Garden at Millennium Park. “You often think of a green roof as you’re standing at the street level looking at this x number of stories tall, and on top of it there is a green roof. Millennium Park is actually at street level, but five stories of parking garage were sunken below the park.”

Millennium Park’s dual function as a parking hub in downtown Chicago as well as a park made a strong case for the green roof creation in the first place.

“It was the city and Millennium Park Foundation’s vision that the two organizations came together and said, ‘We can do both,’” Stewart said.

With 35-50-foot-tall mature trees, sidewalks and a waterproof membrane, all above the parking structure itself, the green roof is certainly as nontraditional as Stewart claims. He said that the site requires little maintenance since it is largely self-sustaining, and the water filtration and drainage offered by the soil and gravel only help the city by cleaning water from street run-off and rain before it enters the sewers.

Controlling rainwater is a benefit that many venue operators seek for their green roofs. After a significant amount of flooding in 2010, Music City Center in Nashville, Tenn., changed the plans they already had for a green roof to accommodate the potential for more flooding.

Amanda Littleford, sustainability coordinator at the Music City Center, said that the facility is now certified LEED gold, surpassing the mandate by their city mayor for all metro-owned buildings to at least reach silver. The roof now gathers rainwater in a 360,000-gallon cistern, which is used to flush toilets, irrigate landscaping and water the green roof.

“The sedum can hold about two times its weight with water, like a cactus,” said Littleford, “so it really helps us collect a lot of rain water that we wouldn’t be capturing if we were just collecting out of our gutters or downspouts.”

Music City Center is a good example of an extensive green roof, wherein the soil medium is two inches thick. Littleford said that the green roof requires minimal maintenance, as the hardy vegetation is drought resistant, and a drip irrigation system takes care of the water it needs for one hour three

times a week. The site also avoids pesticides by employing an outside company to hand-pick weeds.

Lincoln Center Theater in New York City has taken an even easier, but no less effective, approach to green roofs with a tray system. Facilities Manager Alex Mustelier said that after the trays were planted with sedum and grown off site, the installation was not difficult, and that all his facility needed to do was make sure it was water tight and able to withstand the weight of the trays.

“After that it just sort of does what it does,” Mustelier said, adding that staff will fertilize and pick weeds once a year in spring. He praised the tray system as a good alternative for venues that might not have the budget or space for more complicated green roofs.

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“They’re not as expensive, they do still have very definite advantages in terms of sustainability and efficiency, but they don’t take the amount of preparation and money and work that your deeper and more elaborate green roofs take,” said Mustelier.

Target Center Arena, Minneapolis, stands on the opposite side of the spectrum again. Tom Reller, senior director of operations at the arena, said that after Minneapolis’ city council decided to have a green roof installed at the facility, a yearlong process of bidding and designing began, after which the actual construction took 20 weeks to complete. The main roof is now covered with 2.5 acres of greenery, with over 100 varieties of plants, mostly sedums.

With a 20-year plan behind it, Reller appreciates the stability built into the system as a whole and the minimal maintenance it requires. “It’s like a lot of prairies in the summer,” said Reller. “We do have to control weeds, and if you do have a spot that isn’t growing or has issues, you need to plant back. It’s very hardy; it’s been strong; we’ve been fortunate since day one.”

Littleford agreed that the right choice of vegetation is key for people looking to install green roofs on their venues. “Every environment is different, depending on what city and state you’re in,” she said. “Make sure that you’re planting the plants that are going to do well in your environment and require the least amount of maintenance.”

Reller shared that the benefits have come in no short supply for Target Center Arena. He shared that the insulating factor for the building has gone from R-16 to R-36, and that an estimated one million gallons of rainwater has been diverted by the green roof.

As much as a green roof can help buildings become more sustainable, Reller urged venues to make a cost analysis first when weighing their options, and to look at factors like the amount of weight a building can hold.

Stewart said that while there is much to be gained from being LEED-certified, earning Living Building Challenge points and making investors feel good about ecological benefits, there is still a long future ahead for every building to consider before making the leap to installation.

“There are lots of benefits to it, but I always worry people really understand what it

takes to maintain a green roof.” Stewart said that there are plenty of green roofs around the country venue operators can visit to understand what designing, planting and maintaining a green roof takes, “not just for opening day of a green roof but for 10, 15, and 20 years down the road, what are the long-term management aspects? That’s really critical.”

Stewart also shared that by looking at what others have done, designers can take the

opportunity to explore new possibilities, as the Millennium Park has done. “I think that people need to be open to the idea that a green roof doesn’t have to be on top of a building that’s already above ground,” said Stewart.

Interviewed for this story: **Amanda Littleford**, (615) 401-1453; **Alex Mustelier**, (212) 501-3100; **Tom Reller**, (612) 673-8387; **Scott Stewart**, (312) 228-1004

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